1873MNRAS..33..468N

exposure of the plates could have given us so enormous an extension of the corona, as appears to have been obtained by Mr. Brothers at Syracuse in 1870.*

It must now, too, be evident that, as I have all along held, the want of illuminating power in the silver glass reflector was not the cause of the absence of corona from the photographs of 1868. The whole surface of glass in the rectilinear lens does not concentrate light on the point of the image; but did it do so, we should have as the relative illumination 143·1 for the mirror and 161·6 for the lens. Allowing for a portion of the lens being non-effective, and reflexion at four transmitting surfaces as compared with two reflexions on silver well polished, the instruments used in India in 1868 and 1871 should not be far from equal.

The Buitenzorg pictures show that a fifth of the exposure given at Dodabetta would, with a high sun and clear sky, have produced about equal effects, and the conclusion seems to me absolutely inevitable that the real cause of the absence of corona in 1868 was the haze to which I ascribed it.

I consider this of very great importance, because the large image given by the telescope, as used in 1868, is an enormous gain; and I am convinced that in photographing the corona in any future eclipse it will be every way desirable to use a reflector, or a lens of similar size, and the former is much cheaper, while the ratio of aperture to focal length can be increased even beyond that of the telescope I had in 1868, which would, I imagine, be difficult in a lens.

I think such photographs should be sought in the next attempt to observe a total eclipse, and care should be taken to have the Sun high.

May 14*th*, 1873.

Observations of the Partial Solar Eclipse of May 25, *made at Forest Lodge, Maresfield.* By Capt. Noble.

At the precise instant of first contact the whole sky was covered with clouds; but, looking through the finder of my equatoreal at $23^{\rm h}\ 53^{\rm m}\ 10^{\rm s}$ L.S.T. = $19^{\rm h}\ 37^{\rm m}\ 23^{\rm s}{\cdot}6$ L.M.T. I caught a glimpse of part of the Sun's limb through a little gap; and saw that the Moon had then fairly and perceptibly entered on to it.

At $0^{\rm h}\ 47^{\rm m}\ 40^{\rm s}$ L.S.T. = $20^{\rm h}\ 31^{\rm m}\ 44^{\rm s}{\cdot}7$ L.M.T., the eclipse being, as I assume, just past its greatest phase, the ruggedness of the Moon's Southern limb was very noticeable; a sierra or chain of mountains about south, and an isolated one to the west of them, I took to belong to the Dörfel and Leibnitz Mountains.

At $1^{\rm h}\ 32^{\rm m}\ 40^{\rm s}$ L.S.T. = $21^{\rm h}\ 16^{\rm m}\ 37^{\rm s}{\cdot}3$ L.M.T. I could *just* trace the Moon's limb for a very few seconds beyond the Sun's disk; it was a shade lighter than the sky.

---

* Mr. Brothers' photograph seems to differ from all those of 1871 in showing nearly all the corona on *one* side.

Downloaded from http://mnras.oxfordjournals.org/ by guest on August 19, 2015

© Royal Astronomical Society • Provided by the NASA Astrophysics Data System

1873MNRAS..33..469M

I fortunately observed the last contact through a perfectly clear gap. It occurred at $1^{h}\ 38^{m}\ 27^{s}{\cdot}2$ L.S.T. = $21^{h}\ 22^{m}\ 23^{s}{\cdot}5$ L.M.T. I do not fancy that this determination is 1^{s} in error.

I employed a power of 74, with a red eye-shade; on my 4·2-inch Ross equatoreal, the cloud and mist obviating all necessity for the use either of a reflecting eye-piece or of a constricted aperture.

My latitude and longitude are approximately $51^{\circ}\ 0'\ 58''$ N. and $17^{s}{\cdot}5$ E.

Forest Lodge, Maresfield, Sussex,
June 12, 1873.

Partial Solar Eclipse of May 25, 1873.

By the Rev. S. J. Perry.

During the greater part of this eclipse the sky was perfectly clear, but thick clouds obscured the Sun during the remainder of the morning.

Six photographs were taken of the successive phases, and the instant of exposure noted by a Frodsham chronometer. The first picture was taken when the Moon had sufficiently advanced on the Sun's limb to admit of accurate measurement, and it was intended to complete the series with a photograph of the shadow a minute before last contact; but the clouds interfered towards the end. A diameter of 121·5 millimetres was chosen as the most convenient under the circumstances for the photographs.

The following are the results obtained, the unit of length being the solar diameter :—

No.	G.M.T.	Dist. between Cusps.	Magnitude.
	h m s		
1	7 38 41·7 a.m.	0·112	0·0063
2	7 50 16·9	0·513	0·142
3	8 7 43·0	0·730	0·317
4	8 21 1·1	0·791	0·388
5	8 32 35·7	0·825	0·435
6	8 44 29·1	0·756	0·345

Stonyhurst Observatory,
June 5th, 1873.

The Total Solar Eclipse of June 14*th*, 2151.

By J. Maguire, Esq.

In the *Monthly Notices* for December last I stated that, from elements which I considered doubtful, I had made a calculation which placed the central line of this eclipse to the north of Norwich. Since that time I have derived the places of the Sun

Downloaded from http://mnras.oxfordjournals.org/ by guest on August 19, 2015

© Royal Astronomical Society • Provided by the NASA Astrophysics Data System